

are more characteristically represented than in Pl. X. fig. 6 ( $\times 30$ ).

*Fig. 35.* One of the fusiform fibres that are sometimes found lying longitudinally upon the side of a small acerate spicule ( $\times 435$ ).

*Fig. 36.* Section along an incurrent canal lying in the middle of the mark, showing ciliated chambers and the small outflow-tubes leading towards an excurrent canal ( $\times 140$ ).

*Fig. 37.* A very early form of globate spicule, from a preparation in glycerine ( $\times 435$ ).

[To be continued.]

## PROCEEDINGS OF LEARNED SOCIETIES.

### GEOLOGICAL SOCIETY.

January 21, 1880.—Henry Clifton Sorby, Esq., LL.D., F.R.S.,  
President, in the Chair.

The following communications were read:—

1. “On the Genus *Pleuracanthus*, Agass., including the Genera *Orthacanthus*, Agass. & Goldf., *Diplodus*, Agass., and *Xenacanthus*, Beyr.” By J. W. Davis, Esq., F.G.S.

The author commenced with an historical account of the supposed genera of fishes founded on remains occurring in Carboniferous and Permian strata, mentioned in the title of his paper. The teeth described by Agassiz under the name of *Diplodus* have been already shown by Sir Philip Egerton to be associated with spines of the *Pleuracanthus* type; and this identification was accepted by the author, who also showed that *Xenacanthus*, Beyrich, is identical with *Pleuracanthus*, and that, on the ground of priority, which there is no reason for disregarding, the latter name ought to be retained. With regard to *Orthacanthus*, he indicated that in the type described by Agassiz the two rows of denticles are placed close together along the posterior face of the spine, while in his *Pleuracanthus* the denticles are situated as far as possible apart on the sides of the spine. In the new Carboniferous species described in the present paper, and in those described and figured by the officers of the United-States Survey, the denticles occupy almost every intermediate position between these two extremes; and hence the author was inclined to unite *Orthacanthus* with *Pleuracanthus*. *Compsacanthus*, Newb., is also probably nearly related to *Pleuracanthus*. The author described in some detail the characters of the genus *Pleuracanthus*, and discussed its scientific position, with regard to which he inclined to the adoption of Dr. Rudolph Kner's opinion that the *Pleuracanthus* constitute a type of fish intermediate between the Elasmobranch and Teleostean fishes, but more nearly approaching the latter, probably through the Siluroids.

Ten species of the genus *Pleuracanthus*, modified as above, were described by the author from the Coal-measures, principally of Yorkshire. Eight of these were described as new.

2. "On Mammalian Remains and Tree-trunks in Quaternary Sands at Reading." By E. B. Poulton, Esq., F.G.S.

The author described in detail a pit opened on the south slope of the Thames valley on the Redland Estate at Reading, about 36 feet above the river-level. The north face shows gravels and alluvia containing chalk-flints and fossils, fragments of Oolitic limestone and fossils, and scattered materials of the high-level gravel, overlying reconstructed beds (sands and clays) composed chiefly of the debris of the Woolwich and Reading beds, and in part of the basement bed of the London Clay. The author noticed especially the traces of fluvial action displayed in these reconstructed Tertiary materials, and the fossil remains found in the sands and gravels, which included traces of *Elephas primigenius*, *Bos primigenius*, *Equus fossilis*, and ? *Rhinoceros tichorhinus*, besides numerous portions of trunks of trees, in some parts of which traces of coniferous structure had been recognized. The characters presented by this pit were of interest, as adding another to the scattered evidences of the existence in postglacial time in the valley of the Thames of a larger river occupying that valley, and flowing at from 20 to 30 feet higher than the present river.

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#### MISCELLANEOUS.

*The Cave-Bear of California.* By E. D. COPE.

IN exploring a cavern in the Carboniferous Limestone of Shasta County, Cal., James D. Richardson discovered the skull of a bear beneath several inches of cave-earth and stalagmite. The specimen is in a good state of preservation, and demonstrates that the cave-bear of that region was a species distinct alike from the cave-bear of the East (*Ursus pristinus*) and from any of the existing species. In dimensions the skull equals that of the grizzly bear, but it is very differently proportioned. The muzzle is much shorter and is wide, and descends obliquely downward from the very convex frontal region. It wants the large postorbital processes of the grizzly, but has the tuberosities of the polar bear (*U. maritimus*), which it also resembles in the convexity of the front. Sagittal crest well developed. Three (one median and posterior) incisive foramina; three external infraorbital foramina. The teeth are large; and the series presents the peculiarity of being without diastema. The crowns of the premolars are not preserved; but if there were not three premolars, the second tooth has two well-developed roots. First true molar with but two external and one internal tubercle. The absence of diastema renders it necessary to separate